

An Efficient Student Mobile Application for Library Management Tracking System

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ABSTRACT

Library Management System is the project where the admins of the Library keep the track of the database of the students and the books available in the Library. This Mobile Application is to help the students to track the books issued in their ID. This mobile application not only helps the students to track the books but also this application is added with multiple features. The Students can search for a particular book in the Library through the mobile application instead of reaching the library, through this feature students can also additionally know the quantities of books available in the library and the authors of the book. This project deals with renewal of books through this mobile application at anytime and anywhere through a single click which upon renews the books for next period of days and updates the date. This renewal of book is made available such that only for the first three times a student can renew the book. Additionally this application includes many cardview list of pdf books which can be used and read directly. Fine payment for late renewal of books or for the lost books can be paid directly through this application. This Student mobile Application is designed in such a way that they can perform most of the Library activities easily without any difficulty and also more efficiently.

Keywords: Library System, Admin, Payment function, Renewal, Notifications, Searching.

1. INTRODUCTION

Library Management is Software built to handle the primary housekeeping functions of a library. Libraries rely on library management system to manage asset collections as well as relationships with the Library members. Library System gives the all detailed information about students, staff and books. It will track on the how many books available in library and books issued to the students. It keeps the record of the suppliers and book binders. Technology has changed our daily life routine as well as living style. So, students of school or colleges or university mostly prefer application based

services that supports smart phone to get all type of information related to library actions. Instead of reaching library system this will be efficient because almost all mobile users has smart phone now days. When it comes with library system it provides only the less features which is acceptable in the earlier days but not in this Smart world. That is why students interest towards using college or school or university is decreasing day by day. We designed an application to fulfil the requirement of students based on present scenario of market and latest technology like java, android etc. to solve the students' problem. The main Objective of the

project is to efficiently use the library and increase the usage of the library among the students.

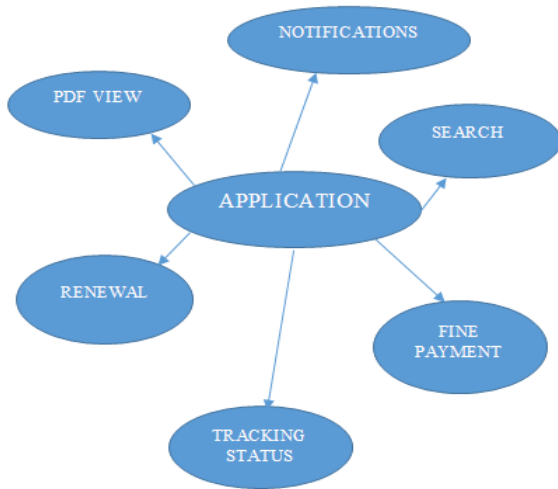


Figure: Services of Application

II.LITERATURE REVIEW

Thus mentioned already in the Introduction, our main objective is to increase the usage of the library among the students which can be done through the mobile application where most of the library related works can be done easily through online. We conducted a literature based on our project which highly helps us in improving the existing system to the improved one.

[1]. John Paul Anbu K, Sanjay Kataria presented a paper titled “Access to Library Resources through portable devices” in 2015 which looks at the best practices in creating mobile library websites. The main motive behind this paper is with the cosmic change of mobile revolution around the globe, there is no surprise that the libraries stand in the forefront in

providing information to their users using the new mode of mobile technology.

[2]. Sanjay Kataria, presented a paper titled “Library in Everyone’s Pocket” in the year 2018. This paper explores various infrastructural requirements with diversified services, about how the e-learning alters to m-learning and their benefits to patrons. This paper is based on with to Bundelkhand University. In the era of smart gadgets, the libraries and knowledge centres of today have to move with the pace of users e-tech demands. In the light of this background this paper analyses how library can reach to everyone’s pocket with reference to Bundelkhand University library app.

[3]. John Paul Anbu K., Sanjay Kataria presented a paper titled “Emerging trends in Mobile OPACs” which relates to options and solutions in creating mobile optimized library catalogues.

The common practice seems to be in linking the library OPAC to the mobile websites which provide a number of problems in terms of display and results. This paper is an attempt to look at the mobile OPAC standards and also the factors which determine the optimum mobile OPACS are discussed display. Various options and solutions to provide mobile OPAC has been discussed in this article.

[4]. Pradeep Kumar, Divya Singh Rawat presented a paper titled “E-Resources and their Access-An Appraisal of the Engineering College Libraries of Rajasthan”. This paper looks at 50 Engineering College Libraries in Rajasthan and looks at the e-resource and access facilities of these engineering colleges. The current state of Engineering education at Rajasthan is discussed in the paper. The ability to use e-resources efficiently depends on basic computer skills,

knowledge of what is available and how to use it, and ability to define a research problem. Access is only as good as the e-resources are affordable.

In the above Research Literature Review, all the outcomes, techniques and their related works results are considered and upon considering it we proposed a new system which completely hides all the difficulties in accessing libraries.

III. PROPOSED WORK

The Main aim of this paper is to achieve the Mobile Application based Library by allowing the particular Librarian based access to the Students. The following are:

- Students can track their transactions status which includes the title of the book, name of the author, transaction date and the count of the book.
- Students can renew their book their easily just by a single click which upon renews the book for the next period of time. The renewal of books is made in such a way that a student can able to renew a book only for the 3rd time. Upon completion of the 3rd time, renewal option will be disabled for that particular book.
- Fine is being collected for the late return/renewal of the books. The fine amount is calculated by counting the due days until the students pay the fine.
- An attractive searching system is designed where the students can search the book either by entering the book id or the book name. This Searching system displays the accurate results with the quantity of the book available.
- For transactions notifications is generated which can alert the students in case of incorrect transactions.

Students can interact with the library admin through chat bot during the working hours regarding any issues or complaints or suggestions or grievances.

Accessing E-Resources can be done effectively through this mobile application where journals, foreign authors textbooks, reference books etc can accessed easily through this single application.

The architecture diagram of the project is described below which includes the features of Web Services to communicate with the database and the mobile application.

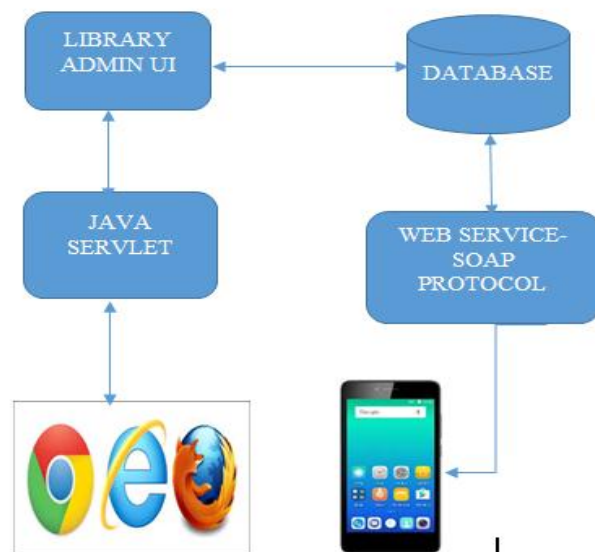


Figure: Architecture Diagram

➤ Admin Library User Interface:

The Admin UI system is designed using the Web Development tools such as JSP (Java Server Pages) which is a technology that helps software developers create dynamically generated web pages based on HTML, XML, or other document types, CSS (Cascading Style

Sheets) is used for describing the presentation of a document written in a markup language like HTML and also a cornerstone technology of the World Wide Web, alongside HTML and JavaScript, Java Servlet is a program which runs within a Web Server-the servlets receive and respond to requests from web clients usually across HTTP(Hypertext Transfer Protocol).

➤ *Database:*

SQL(Structured Query Language) is used for storing the database purposes where the student database information,book details,transactions details,book issue details,books return details,fine payment details etc.For this Purpose SQLYog Software is used for manual entering and storing of data in the database.The Data is very much important in this project.

➤ *Web Service:*

An Web Service is an Communication medium which makes itself available over the internet and uses the XML Messaging system.REST protocol and SOAP protocol are the two major types of web services that are provided over the internet.In this Project SOAP(Simple Object Access Protocol) protocol is used. SOAP is an XML based industry standard protocol for designing and developing web services. Since it's XML based, it's platform and language independent. So our server can be based on JAVA and client can be on .NET, PHP etc. and vice versa.

➤ *Mobile Application:*

Mobile App is being designed for the usage of the college/universities students.Many Softwares are available for developing the mobile app,in this project Eclipse is used for developing the Student mobile application.

➤ *Sign in and Sign Up Activity:*

Only the Registered users can sign in to the application.If a student is new to the app he/she must sign up into the application by entering the register no,DOB and mobile no which further generates OTP for the registered mobile number and then creating password process begins.For Example,If the app is launched for the particular University then only that university students can be able to sign in/sign up into the application.If the user forgets his password he/she can change the password by entering the register number,DOB and the registered mobile number and only after that if the given fields matches,the password can be changed.

➤ *Developing Admin page:*

The Login page of the admin is designed and the admin user name and password is stored in the SQL database

➤ *Tracking Status:*

In this Module,after login into the application,students can check their transactions status just by entering the register number which displays the no of books taken,the next renewal/return date of the book,quantity of books taken,title and author of the book,id of the book.

➤ *Searching for a book in the library:*

If a student wants to search for a book in the library,then they can search for a book just by entering the book id or the book title which displays the quantity of books available currently in the library.This will be highly useful for the students when to need to take a book in the library.

➤ *Renewal of Books:*

Online renewal of books is the highly advantageable in this application.Instead of carrying an huge amount of load just for the renewal purpose,students can use this application to renew the books just by a single

IV.MODULES OF THE PROJECT

click which upon renews the books for the next period of time. Renewing of books is made in such a way that the students can renew their books only for the 3 times and upon that the book should be renewed/returned which is done by the Library Admin. This feature is added to ensure the safety of the library book.

➤ *Payment of Fine:*

Fine payment for the late renewal/return will be charged from the students which they can directly pay through this mobile application. This avoids the usage of challans and standing for the queue for paying the library due fine. Any fine payment that is done for the library can be done directly through this application.

➤ *E-Resources and Notifications:*

Accessing E-Resources is quite easier nowadays and this application made very much easier and efficient and accessing all type of the resources. Students can be able to search for the Online PDF Books and it can read directly through this application, Journals & Magazines and all type of the accessible resources. Daily news can be added in this feature. For every transaction that happened for a notification will be generated for alerting the students in case of wrong entry or transactions.

➤ *Developing Chat Bot:*

An Chat Bot is used to interact with the other person which gives a typically quick responses. This application is added with this feature where the Mobile Application Users can interact with the library admin regarding any issues or for lodging complaints or any grievances. If in case there is any problem in mobile application for accessing the database or for renewing the students can directly interact with the admin asking the admin to check his/her transaction status. This feature will be

available only during the working hours of the college/university.

V. FUTURE WORK & CONCLUSION

This mobile application also provides a new way of techniques and methods for the Library. Technology raises day by day and we must adapt to it. This Mobile Library application greatly helps the students and the Librarian to perform their own actions in an easier way. This application will be considered and will be developed for all the colleges and this will be highly noticeable among the students community and the Librarian.

This application is specially designed by considering our college library as a case study. In the future work of this project, this project will be implemented for all over colleges in Tamilnadu by starting each and every zone as a case study. Upon development of the entire application this will be launched into the PlayStore, where any college students can access this application just by entering the Library ID uniquely issued to each and every one. Only if the unique Library ID

and the password matches, students can be able to access their own college database and can perform all those activities. Additionally, *Adding Books to Cart feature* will be included where the students can place an order for their required books which will be available for 24 hours in the cart and the students can go directly and just get the book from the Library.

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